Problem Statement-1

Entityclass

```
package com.rest.entity;
import jakarta.persistence.Column;
import jakarta.persistence.Entity;
import jakarta.persistence.Id;
@Entity
public class PersonEntity {

	@Id
	@Column(name="ID")
	private long id;

	@Column(name="Name")
	private String name;

	@Column(name="Location")
	private String location;
	public long getId() {return id;
	}
	public void setId(long id) {this.id = id;
	}
	public String getName() {return name;
	}
	public void setName(String name) {this.name = name;
	}
	public String getLocation() {return location;
	}
	public void setLocation(String location) {this.location = location;
	}

	public PersonEntity() {}

	public PersonEntity(long id, String name, String location) {
		super();
		this.id = id;
		this.name = name;
		this.location = location;
	}
}
```

Repositoryclass

```
package com.rest.repo;
import org.springframework.data.jpa.repository.JpaRepository;
import com.rest.entity.PersonEntity;
public interface PersonRepo extends JpaRepository<PersonEntity, Integer>{}
```

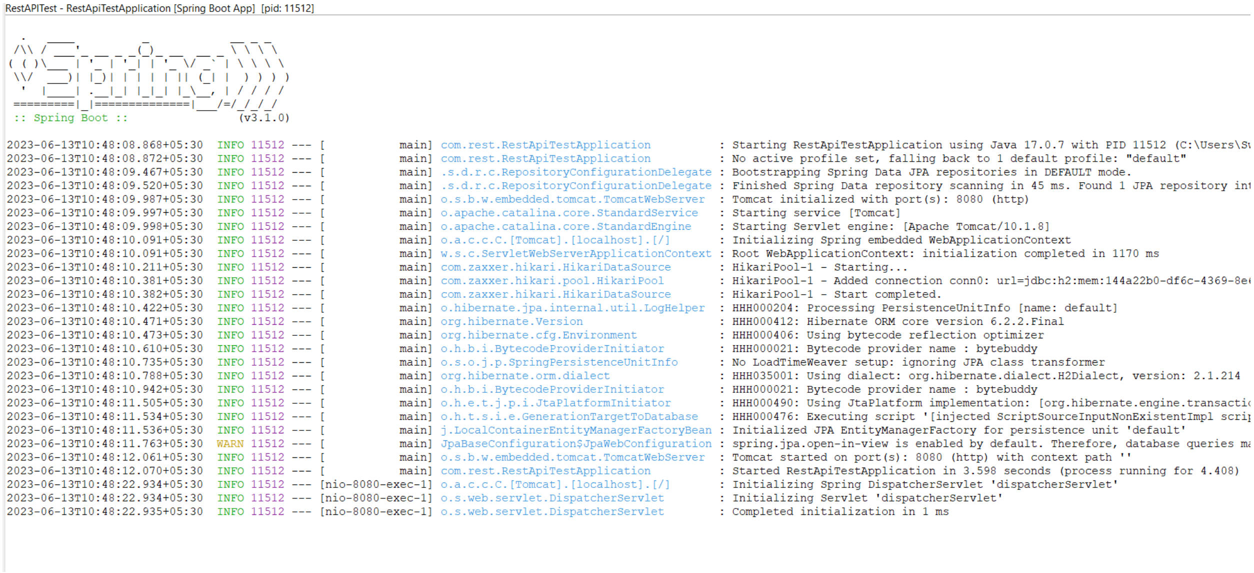
Serviceclass

```
package com.rest.service;
import java.util.List;
import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.stereotype.Service;
import com.rest.entity.PersonEntity;
import com.rest.repo.PersonRepo;
@Service
public class PersonService {
@Autowired
PersonRepo pr;
public List<PersonEntity> getAllProduct(){
return pr.findAll();
}
public PersonEntity getProduct(int id){
return pr.findById(id).get();
}
public void addProduct(PersonEntity pe){
pr.save(pe);
}
public void updateProduct(int id, PersonEntity pe){
if(pr.findById(id).isPresent()) {
PersonEntity oldPersonEntity=pr.findById(id).get();
oldPersonEntity.setName(pe.getName());
oldPersonEntity.setLocation(pe.getLocation());
pr.save(oldPersonEntity);
}
}
public void deleteProduct(int id){
pr.deleteById(id);
}
}
```

MainControllerclass

```
package com.rest.controller;
import java.util.List;
import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.web.bind.annotation.GetMapping;
import org.springframework.web.bind.annotation.PathVariable;
import org.springframework.web.bind.annotation.RequestBody;
import org.springframework.web.bind.annotation.RequestMapping;
import org.springframework.web.bind.annotation.RequestMethod;
import org.springframework.web.bind.annotation.RestController;
import com.rest.entity.PersonEntity;
import com.rest.service.PersonService;
```

```java
@RestController
@RequestMapping(path = "/webapi")
public class MainController {
@Autowired
PersonService PersonService;
// @RequestMapping("/all")
@GetMapping("/all")
public List<PersonEntity> getAllProduct(){
return PersonService.getAllProduct();
}
@RequestMapping("/person/{id}")
public PersonEntity getProduct(@PathVariable int id){
return PersonService.getProduct(id);
}
@RequestMapping(method=RequestMethod.POST, value="/person")
public void addProduct(@RequestBody PersonEntity pe ) {
PersonService.addProduct(pe);
}
@RequestMapping(method=RequestMethod.PUT, value="/person/{id}")
public void updateProduct(@PathVariable int id, @RequestBody PersonEntity pe )
{
PersonService.updateProduct(id, pe);
}
@RequestMapping(method=RequestMethod.DELETE, value="/person/{id}")
public void deleteProduct(@PathVariable int id) {
PersonService.deleteProduct(id);
}
}
```



RestAPITest - RestApiTestApplication [Spring Boot App] [pid: 11512]

```
  .   ____          _            __ _ _
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 \\/  ___)| |_)| | | | | || (_| |  ) ) ) )
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 :: Spring Boot ::                (v3.1.0)

2023-06-13T10:48:08.868+05:30  INFO 11512 --- [           main] com.rest.RestApiTestApplication          : Starting RestApiTestApplication using Java 17.0.7 with PID 11512 (C:\Users\S
2023-06-13T10:48:08.872+05:30  INFO 11512 --- [           main] com.rest.RestApiTestApplication          : No active profile set, falling back to 1 default profile: "default"
2023-06-13T10:48:09.467+05:30  INFO 11512 --- [           main] .s.d.r.c.RepositoryConfigurationDelegate : Bootstrapping Spring Data JPA repositories in DEFAULT mode.
2023-06-13T10:48:09.520+05:30  INFO 11512 --- [           main] .s.d.r.c.RepositoryConfigurationDelegate : Finished Spring Data repository scanning in 45 ms. Found 1 JPA repository in
2023-06-13T10:48:09.987+05:30  INFO 11512 --- [           main] o.s.b.w.embedded.tomcat.TomcatWebServer  : Tomcat initialized with port(s): 8080 (http)
2023-06-13T10:48:09.997+05:30  INFO 11512 --- [           main] o.apache.catalina.core.StandardService   : Starting service [Tomcat]
2023-06-13T10:48:09.998+05:30  INFO 11512 --- [           main] o.apache.catalina.core.StandardEngine    : Starting Servlet engine: [Apache Tomcat/10.1.8]
2023-06-13T10:48:10.091+05:30  INFO 11512 --- [           main] o.a.c.c.C.[Tomcat].[localhost].[/]       : Initializing Spring embedded WebApplicationContext
2023-06-13T10:48:10.091+05:30  INFO 11512 --- [           main] w.s.c.ServletWebServerApplicationContext : Root WebApplicationContext: initialization completed in 1170 ms
2023-06-13T10:48:10.211+05:30  INFO 11512 --- [           main] com.zaxxer.hikari.HikariDataSource       : HikariPool-1 - Starting...
2023-06-13T10:48:10.381+05:30  INFO 11512 --- [           main] com.zaxxer.hikari.pool.HikariPool        : HikariPool-1 - Added connection conn0: url=jdbc:h2:mem:144a22b0-df6c-4369-8e
2023-06-13T10:48:10.382+05:30  INFO 11512 --- [           main] com.zaxxer.hikari.HikariDataSource       : HikariPool-1 - Start completed.
2023-06-13T10:48:10.422+05:30  INFO 11512 --- [           main] o.hibernate.jpa.internal.util.LogHelper  : HHH000204: Processing PersistenceUnitInfo [name: default]
2023-06-13T10:48:10.471+05:30  INFO 11512 --- [           main] org.hibernate.Version                    : HHH000412: Hibernate ORM core version 6.2.2.Final
2023-06-13T10:48:10.473+05:30  INFO 11512 --- [           main] org.hibernate.cfg.Environment            : HHH000406: Using bytecode reflection optimizer
2023-06-13T10:48:10.610+05:30  INFO 11512 --- [           main] o.h.b.i.BytecodeProviderInitiator        : HHH000021: Bytecode provider name : bytebuddy
2023-06-13T10:48:10.735+05:30  INFO 11512 --- [           main] o.s.o.j.p.SpringPersistenceUnitInfo      : No LoadTimeWeaver setup: ignoring JPA class transformer
2023-06-13T10:48:10.788+05:30  INFO 11512 --- [           main] org.hibernate.orm.dialect                : HHH035001: Using dialect: org.hibernate.dialect.H2Dialect, version: 2.1.214
2023-06-13T10:48:10.942+05:30  INFO 11512 --- [           main] o.h.b.i.BytecodeProviderInitiator        : HHH000021: Bytecode provider name : bytebuddy
2023-06-13T10:48:11.505+05:30  INFO 11512 --- [           main] o.h.e.t.j.p.i.JtaPlatformInitiator       : HHH000490: Using JtaPlatform implementation: [org.hibernate.engine.transacti
2023-06-13T10:48:11.534+05:30  INFO 11512 --- [           main] o.h.t.s.i.e.GenerationTargetToDatabase   : HHH000476: Executing script '[injected ScriptSourceInputNonExistentImpl scri
2023-06-13T10:48:11.536+05:30  INFO 11512 --- [           main] j.LocalContainerEntityManagerFactoryBean : Initialized JPA EntityManagerFactory for persistence unit 'default'
2023-06-13T10:48:11.763+05:30  WARN 11512 --- [           main] JpaBaseConfiguration$JpaWebConfiguration : spring.jpa.open-in-view is enabled by default. Therefore, database queries m
2023-06-13T10:48:12.061+05:30  INFO 11512 --- [           main] o.s.b.w.embedded.tomcat.TomcatWebServer  : Tomcat started on port(s): 8080 (http) with context path ''
2023-06-13T10:48:12.070+05:30  INFO 11512 --- [           main] com.rest.RestApiTestApplication          : Started RestApiTestApplication in 3.598 seconds (process running for 4.408)
2023-06-13T10:48:22.934+05:30  INFO 11512 --- [nio-8080-exec-1] o.a.c.c.C.[Tomcat].[localhost].[/]       : Initializing Spring DispatcherServlet 'dispatcherServlet'
2023-06-13T10:48:22.934+05:30  INFO 11512 --- [nio-8080-exec-1] o.s.web.servlet.DispatcherServlet        : Initializing Servlet 'dispatcherServlet'
2023-06-13T10:48:22.935+05:30  INFO 11512 --- [nio-8080-exec-1] o.s.web.servlet.DispatcherServlet        : Completed initialization in 1 ms
```
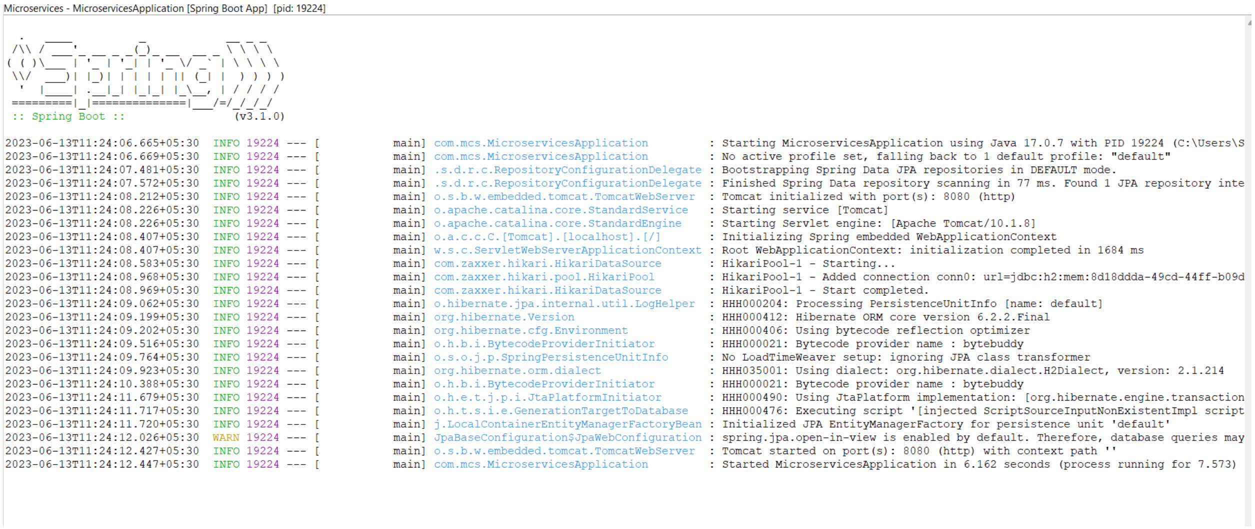

Problem Statement-2

```
package com.mcs.entity;
import jakarta.persistence.Column;
import jakarta.persistence.Entity;
import jakarta.persistence.Id;
@Entity
public class PersonEntity {

      @Id
      @Column(name="ID")
      private long id;

      @Column(name="Name")
      private String name;

      @Column(name="Location")
      private String location;
      public long getId() {return id;
      }
      public void setId(long id) {this.id = id;
      }
      public String getName() {return name;
      }
      public void setName(String name) {this.name = name;
      }
      public String getLocation() {return location;
      }
      public void setLocation(String location) {this.location = location;
      }

      public PersonEntity() {}

      public PersonEntity(long id, String name, String location) {
            super();
            this.id = id;
            this.name = name;
            this.location = location;
      }
}
```

```
package com.mcs.repo;
import org.springframework.data.jpa.repository.JpaRepository;
import org.springframework.stereotype.Repository;
import com.mcs.entity.PersonEntity;
@Repository
public interface PersonRepo extends JpaRepository<PersonEntity, Integer> {
}
package com.mcs.service;
import java.util.HashMap;
import java.util.Map;
import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.stereotype.Service;
import org.springframework.web.client.RestTemplate;
import com.mcs.entity.PersonEntity;
import com.mcs.repo.PersonRepo;
import com.mcs.resp.PersonResponse;
@Service
public class PersonService {
@Autowired
PersonRepo PersonRepo;
RestTemplate restTemplate = new RestTemplate();
public PersonResponse getPerson(int personId){
final String uri = "http://localhost:8082/webapitwo/hobby/{personId}";
Map<String, Integer> params = new HashMap<String, Integer>();
params.put("personId", personId);
String result = restTemplate.getForObject(uri, String.class, params);
PersonEntity pe=PersonRepo.findById(personId).get();
PersonResponse pr=new PersonResponse();
pr.setId(pe.getId());
pr.setName(pe.getName());
pr.setLocation(result);
return pr;
}
public void addPerson(PersonEntity pe){
PersonRepo.save(pe);
}
}
package com.mcs.controller;
import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.web.bind.annotation.PathVariable;
import org.springframework.web.bind.annotation.RequestBody;
import org.springframework.web.bind.annotation.RequestMapping;
import org.springframework.web.bind.annotation.RequestMethod;
import org.springframework.web.bind.annotation.RestController;
import com.mcs.entity.PersonEntity;
import com.mcs.resp.PersonResponse;
import com.mcs.service.PersonService;
@RestController
@RequestMapping(path = "/webapione")
public class MainController {
@Autowired
PersonService personService;
@RequestMapping("/person/{personId}")
public PersonResponse getPerson(@PathVariable int personId){
return personService.getPerson(personId);
}
@RequestMapping(method=RequestMethod.POST, value="/person")
public void addPerson(@RequestBody PersonEntity pe ) {
personService.addPerson(pe);
}
}
package com.mcs.resp;
public class PersonResponse {
            private long id;
            private String name;
            private String location;

            public PersonResponse() {}

            public PersonResponse(long id, String name, String location) {
                  super();
                  this.id = id;
                  this.name = name;
                  this.location = location;
            }
            public long getId() {return id;
            }
            public void setId(long id) {this.id = id;
            }
            public String getName() {return name;
            }
            public void setName(String name) {this.name = name;
            }
            public String getLocation() {return location;
            }
            public void setLocation(String location) {this.location =
location;
            }

}
```



```
Microservices - MicroservicesApplication [Spring Boot App]  [pid: 19224]

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 :: Spring Boot ::                (v3.1.0)

2023-06-13T11:24:06.665+05:30  INFO 19224 --- [           main] com.mcs.MicroservicesApplication         : Starting MicroservicesApplication using Java 17.0.7 with PID 19224 (C:\Users\S
2023-06-13T11:24:06.669+05:30  INFO 19224 --- [           main] com.mcs.MicroservicesApplication         : No active profile set, falling back to 1 default profile: "default"
2023-06-13T11:24:07.481+05:30  INFO 19224 --- [           main] .s.d.r.c.RepositoryConfigurationDelegate : Bootstrapping Spring Data JPA repositories in DEFAULT mode.
2023-06-13T11:24:07.572+05:30  INFO 19224 --- [           main] .s.d.r.c.RepositoryConfigurationDelegate : Finished Spring Data repository scanning in 77 ms. Found 1 JPA repository inte
2023-06-13T11:24:08.212+05:30  INFO 19224 --- [           main] o.s.b.w.embedded.tomcat.TomcatWebServer  : Tomcat initialized with port(s): 8080 (http)
2023-06-13T11:24:08.226+05:30  INFO 19224 --- [           main] o.apache.catalina.core.StandardService   : Starting service [Tomcat]
2023-06-13T11:24:08.226+05:30  INFO 19224 --- [           main] o.apache.catalina.core.StandardEngine    : Starting Servlet engine: [Apache Tomcat/10.1.8]
2023-06-13T11:24:08.407+05:30  INFO 19224 --- [           main] o.a.c.c.C.[Tomcat].[localhost].[/]       : Initializing Spring embedded WebApplicationContext
2023-06-13T11:24:08.407+05:30  INFO 19224 --- [           main] w.s.c.ServletWebServerApplicationContext : Root WebApplicationContext: initialization completed in 1684 ms
2023-06-13T11:24:08.583+05:30  INFO 19224 --- [           main] com.zaxxer.hikari.HikariDataSource       : HikariPool-1 - Starting...
2023-06-13T11:24:08.968+05:30  INFO 19224 --- [           main] com.zaxxer.hikari.pool.HikariPool        : HikariPool-1 - Added connection conn0: url=jdbc:h2:mem:8d18ddda-49cd-44ff-b09d
2023-06-13T11:24:08.969+05:30  INFO 19224 --- [           main] com.zaxxer.hikari.HikariDataSource       : HikariPool-1 - Start completed.
2023-06-13T11:24:09.062+05:30  INFO 19224 --- [           main] o.hibernate.jpa.internal.util.LogHelper  : HHH000204: Processing PersistenceUnitInfo [name: default]
2023-06-13T11:24:09.199+05:30  INFO 19224 --- [           main] org.hibernate.Version                    : HHH000412: Hibernate ORM core version 6.2.2.Final
2023-06-13T11:24:09.202+05:30  INFO 19224 --- [           main] org.hibernate.cfg.Environment            : HHH000406: Using bytecode reflection optimizer
2023-06-13T11:24:09.516+05:30  INFO 19224 --- [           main] o.h.b.i.BytecodeProviderInitiator        : HHH000021: Bytecode provider name : bytebuddy
2023-06-13T11:24:09.764+05:30  INFO 19224 --- [           main] o.s.o.j.p.SpringPersistenceUnitInfo      : No LoadTimeWeaver setup: ignoring JPA class transformer
2023-06-13T11:24:09.923+05:30  INFO 19224 --- [           main] org.hibernate.orm.dialect                : HHH035001: Using dialect: org.hibernate.dialect.H2Dialect, version: 2.1.214
2023-06-13T11:24:10.388+05:30  INFO 19224 --- [           main] o.h.b.i.BytecodeProviderInitiator        : HHH000021: Bytecode provider name : bytebuddy
2023-06-13T11:24:11.679+05:30  INFO 19224 --- [           main] o.h.e.t.j.p.i.JtaPlatformInitiator       : HHH000490: Using JtaPlatform implementation: [org.hibernate.engine.transaction
2023-06-13T11:24:11.717+05:30  INFO 19224 --- [           main] o.h.t.s.i.e.GenerationTargetToDatabase   : HHH000476: Executing script '[injected ScriptSourceInputNonExistentImpl script
2023-06-13T11:24:11.720+05:30  INFO 19224 --- [           main] j.LocalContainerEntityManagerFactoryBean : Initialized JPA EntityManagerFactory for persistence unit 'default'
2023-06-13T11:24:12.026+05:30  WARN 19224 --- [           main] JpaBaseConfiguration$JpaWebConfiguration : spring.jpa.open-in-view is enabled by default. Therefore, database queries may
2023-06-13T11:24:12.427+05:30  INFO 19224 --- [           main] o.s.b.w.embedded.tomcat.TomcatWebServer  : Tomcat started on port(s): 8080 (http) with context path ''
2023-06-13T11:24:12.447+05:30  INFO 19224 --- [           main] com.mcs.MicroservicesApplication         : Started MicroservicesApplication in 6.162 seconds (process running for 7.573)
```

RestApitwo

```
package com.mcs.entity;
import jakarta.persistence.Column;
import jakarta.persistence.Entity;
import jakarta.persistence.Id;
@Entity
public class PersonEntity {

      @Id
      @Column(name="ID")
      private long id;

      @Column(name="Name")
      private String name;

      @Column(name="Location")
      private String location;
      public long getId() {return id;
      }
      public void setId(long id) {this.id = id;
      }
      public String getName() {return name;
      }
      public void setName(String name) {this.name = name;
      }
      public String getLocation() {return location;
      }
      public void setLocation(String location) {this.location = location;
      }

      public PersonEntity() {}

      public PersonEntity(long id, String name, String location) {
            super();
            this.id = id;
            this.name = name;
            this.location = location;
      }
}

package com.mcs.repo;
import org.springframework.data.jpa.repository.JpaRepository;
import org.springframework.data.jpa.repository.Query;
import org.springframework.stereotype.Repository;
import com.mcs.entity.PersonEntity;
@Repository
public interface PersonRepository extends JpaRepository<PersonEntity, Integer>
{
@Query("SELECT p.name FROM PersonEntity p WHERE p.id=:id")
public String findByPersonId(Integer personId);
}


package com.mcs.service;
import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.stereotype.Service;
import com.mcs.repo.*;
import com.mcs.entity.*;
@Service
public class PersonService {
@Autowired
PersonRepository PersonRepository ;
public String findByPersonId(int personid){
return PersonRepository .findByPersonId(personid);
}
public void addHobby(PersonEntity he){
PersonRepository .save(he);
}
}
package com.mcs.controller;
import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.web.bind.annotation.PathVariable;
import org.springframework.web.bind.annotation.RequestBody;
import org.springframework.web.bind.annotation.RequestMapping;
import org.springframework.web.bind.annotation.RequestMethod;
import org.springframework.web.bind.annotation.RestController;
import com.mcs.service.*;
import com.mcs.entity.*;
@RestController
@RequestMapping(path = "/webapitwo")
public class MainController {
@Autowired
PersonService PersonService;
@RequestMapping("/hobby/{personid}")
```

```
public String findByPersonId(@PathVariable int personid){
return PersonService.findByPersonId(personid);
}
@RequestMapping(method=RequestMethod.POST, value="/hobby")
public void addHobby(@RequestBody PersonEntity he ) {
PersonService.addHobby(he);
}
}
```